Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of forming an optical waveguide, comprising:

(a) forming over a substrate a layer of a photodefinable composition comprising at least one material chosen from substituted or unsubstituted polyamides, polyimides, poly(meth)acrylates, polyurethanes, polycarbonates, epoxies, polysiloxanes, polysilsesquioxanes, norbornenes, silicates, and SOL-Gels;

(b) exposing a portion of the layer to actinic radiation;

(c) developing the exposed layer to form a waveguide core structure; and

(d) heating the waveguide core structure to a temperature and for a time effective to reflow the structure such that it becomes at least partially rounded in cross-section.

2. (Canceled).

3. (Original) The method of claim 2, wherein the photodefinable composition comprises a polymer comprising units of the formula ($RSiO_{1.5}$), wherein R is a substituted or unsubstituted organic side chain group.

4. (Original) The method of claim 3, wherein the photodefinable composition comprises a polymer comprising units of the formula ($R^1SiO_{1.5}$) and ($R^2SiO_{1.5}$), wherein R^1 and R^2 are different and are substituted or unsubstituted organic side chain groups.

5. (Original) The method of claim 4, wherein one of R^1 and R^2 is a substituted or unsubstituted aromatic group and the other of R^1 and R^2 is a substituted or unsubstituted aliphatic group.

6. (Original) The method of claim 1, wherein the surface of the substrate comprises a first cladding layer on which the layer of photodefinable composition is formed and a second cladding layer is deposited over the waveguide core structure and the first cladding layer.

7. (Currently Amended) The method of claim 6, wherein the core structure and the cladding layers comprise at least one material belonging to the same class of materials chosen from substituted or unsubstituted polyamides, polyimides, poly(meth)acrylates, polyurethanes, polycarbonates, epoxies, polysiloxanes, polysilsesquioxanes, norbornenes, silicates, and SOL-Gels.

8. (Original) The method of claim 1, further comprising prior to (a), forming a channel in the substrate, wherein the channel defines a lower portion of the core structure.

9. (Original) An optical waveguide formed by the method of claim 6.

10. (Original) An electronic device, comprising one or more optical waveguide of claim 9.

11. (Currently Amended) A method of forming an optical waveguide, comprising:

(a) providing a substrate having on a surface thereof a cladding layer of a material having an index of refraction;

(b) forming over a portion of the cladding layer a waveguide core structure comprising at least one material chosen from substituted or unsubstituted polyamides, polyimides, poly(meth)acrylates, polyurethanes, polycarbonates, epoxies, polysiloxanes, polysilsesquioxanes, norbornenes, silicates and SOL-Gels, and silicon oxides, silicon nitrides, silicon oxynitrides, and doped glasses; and

(c) heating the waveguide core structure to a temperature and for a time effective to reflow the structure such that it becomes at least partially rounded in cross-section, wherein the reflowed structure has an index of refraction greater than the index of refraction of the cladding layer.

12. (Original) The method of claim 11, wherein the waveguide core structure is formed by: depositing a waveguide core layer of a photoimageable composition over the cladding layer, exposing the waveguide core layer to actinic radiation, and developing the waveguide core layer, wherein the remaining portion of the waveguide core layer forms the waveguide core structure.

13. (Original) The method of claim 11, wherein the waveguide core structure is formed by depositing a waveguide core layer over the cladding layer, forming an etching mask over a portion of the waveguide core layer, and etching exposed portions of the waveguide core layer.

14. (Original) The method of claim 11, wherein the waveguide core structure is formed by directly printing or embossing the structure on the substrate.

15. (Canceled).

16. (Original) The method of claim 11, further comprising forming a second cladding layer over the waveguide core structure and the other cladding layer.

17. (Original) The method of claim 11, further comprising prior to (b), forming a channel in the cladding layer, wherein the channel defines a lower portion of the core structure.

18. (Original) An optical waveguide formed by the method of claim 11.

19. (Original) An electronic device, comprising one or more optical waveguide of claim 18.

20. (Currently Amended) A method of forming an optical waveguide, comprising:

(a) providing a substrate having on a surface thereof a cladding layer of a material having a first index of refraction; and

(b) forming by printing over a portion of the cladding layer a waveguide core structure having a second index of refraction that is greater than the first index of refraction, wherein the waveguide core structure as printed ~~or embossed~~ is at least partially rounded in cross-section.

--21. (New) The method of claim 20, wherein the waveguide core is formed by ink jet printing.

22. (New) The method of claim 20, wherein the waveguide core structure comprises a polymer comprising units of the formula ($R^1SiO_{1.5}$) and ($R^2SiO_{1.5}$), wherein R^1 and R^2 are different and are substituted or unsubstituted organic side chain groups.--